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DOCKET NO.: DMCI-0099

PATENT



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Application of:

Daphna Havkin-Frenkel, et al.

Serial No.: 10/087,714

Group Art Unit: 1638

Filing Date: February 28, 2002

Examiner: Not Yet Assigned

For: VANILLIN BIOSYNTHETIC PATHWAY ENZYME FROM VANILLA  
PLANIFOLIA

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Scott E. Scioli  
TYPED NAME: Scott E. Scioli  
REGISTRATION NO.: 47,930

Assistant Commissioner for Patents  
Washington, D.C. 20231

Dear Sir:

### INFORMATION DISCLOSURE STATEMENT

Pursuant to 37 C.F.R. §1.56 and in accordance with 37 C.F.R. §§1.97-1.98, information relating to the above-identified application is hereby disclosed. Inclusion of information in this statement is not to be construed as an admission that this information is material as that term is defined in 37 C.F.R. §1.56(b).

- ☒ In accordance with §1.97(b), since this Information Disclosure Statement is being filed either within three months of the filing date of the above-identified application, within three months of the date of entry into the national stage of the above identified application as set forth in §1.491, before the mailing date of a first Office Action on the merits of the above-identified application, or before the mailing date of a first office action after the filing of request for continued examination under §1.114, no additional fee is required.

- ☐ In accordance with §1.129(a), this Information Disclosure Statement is being filed in connection with ☐the first or ☐second After Final Submission, therefore:
- ☐ Certification in Accordance with §1.97(e) is attached; or
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- ☐ In accordance with §1.97(c), this Information Disclosure Statement is being filed after the period set forth in §1.97(b) above but before the mailing date of either a Final Action under §1.113 or a Notice of Allowance under §1.311, or before an action that otherwise closes prosecution in the application, therefore:
- ☐ Certification in Accordance with §1.97(e) is attached; or
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- ☐ Copies of each of the references listed on the attached Form PTO-1449 are enclosed herewith.
- ☒ Copies of references listed on the attached Form PTO-1449 are enclosed herewith EXCEPT THAT:
- ☐ In view of the voluminous nature of references **[list as appropriate]**, and the likelihood that these references are available to the Examiner, copies are not enclosed herewith.

☐ In accordance with §1.98(d), copies of the following references listed on the attached Form PTO-1449 are not enclosed herewith because they were previously cited by or submitted to the U.S. Patent and Trademark Office in patent application(s) for which a claim for priority under 35 U.S.C. §120 have been made in the instant application:

☒ Copies of references **1-5 and 24-27** listed on the attached Form PTO-1449 were previously cited by or submitted to the Patent and Trademark Office in prior application Serial No. **09/462,576**, filed **May 25, 2000**.

☐ If any of the foregoing publications are not available to the Examiner, Applicant will endeavor to supply copies at the Examiner's request.

Please charge any deficiency or credit any overpayment to Deposit Account No. 23-3050.

This form is submitted in duplicate.

There are no listed references which are not in the English language.

Date: June 7, 2002

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<b>Form PTO-1449 Modified</b>  List of Patent and Publications Cited by Applicant (Use several sheets if necessary)  U.S. Department of Commerce Patent and Trademark Office		Docket No. <b>DMCI-0099</b>	Serial No. <b>10/087,714</b>
		Applicant <b>Daphna Havkin-Frenkel, et al.</b>	
		Filing Date <b>February 28, 2002</b>	Group <b>1638</b>
<b>OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)</b>			
1	Funk, C., et al., "P.E. phenylpropanoid metabolism in suspension cultures of <i>Vanilla planifolia</i> Andr. II. Effects of precursor feeding and metabolic inhibitors," <i>Plant Physiol.</i> , <b>1990</b> , <i>94</i> , 95-101		
2	Funk, C., et al., "P.E. phenylpropanoid metabolism in suspension cultures of <i>Vanilla planifolia</i> Andr. III. Conversion of 4-methoxycinnamic acids into 4-hydroxybenzoic acids," <i>Plant Physiol.</i> , <b>1990</b> , <i>94</i> , 102-108		
3	Havkin-Frenkel, D., et al., "Plant tissue culture for production of secondary metabolites," <i>Food Technology</i> , <b>1997</b> , <i>51(11)</i> , 56-58, 61		
4	Risch, S.J., et al., "Spices flavor chemistry and antioxidant properties," <i>ACS Symposium Series 660</i> , <i>American Chemical Society</i> , <b>1996</b> , 30-39		
5	Rao, et al., "Vanilla flavour: production by conventional and biotechnological routes," <i>J. of the Science of Food and Agriculture</i> , <b>2000</b> , <i>80</i> , 289-304		
6	Amed, S.U., et al., "The plant vacuolar sorting receptor AtELP is involved in transport of NH <sub>2</sub> -terminal propeptide-containing vacuolar proteins in <i>Arabidopsis thaliana</i> ," <i>J. Cell Biology</i> , <b>2000</b> , <i>149</i> , 1335-1344		
7	Domoto, C., et al., "Isolation and characterization of two distinct cDNA clones encoding corn seed cysteine proteinases," <i>Biochim. Biophys. Acta</i> , <b>1995</b> , <i>1263(3)</i> , 241-244		
8	Drenth, J., et al., "Structure of papain," <i>Nature</i> , June 8, <b>1968</b> , <i>218(145)</i> , 929-932		
9	Frenkel, D.H., et al., "Vanilla," <i>Spices: Flavor Chemistry and Antioxidant Properties</i> , <i>American Chemical Society</i> , <i>Washington</i> , Risch, et al. (Eds.), <i>Chapter 4</i> , <b>1997</b> , 29-40		
10	Funk, C., et al., "Phenylpropanoid metabolism in suspension cultures of <i>Vanilla planifolia</i> Andr. IV. Induction of vanillic acid formation," <i>Plant Physiol</i> , <b>1992</b> , <i>99</i> , 256-262		
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**Form PTO-149 Modified**

List of Patent and Publications  
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U.S. Department of Commerce  
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Docket No.  
**DMCI-0099**

Serial No.  
**10/087,714**

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**February 28, 2002**

Group  
**1638**

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| 11 | Gelvin, S.B., (Eds.), et al., "Genetic manipulation of <i>Agrobacterium tumefaciens</i> strains to improve transformation of recalcitrant plant species," <u>Plant Molecular Biology Manual</u> , 1994, B4, 1-13                                  |
| 12 | Griffiths, C.M., et al., "Sequencing, expression pattern and RFLP mapping of a senescence-enhanced cDNA from <i>Zea mays</i> with high homology to oryzain $\gamma$ and aleurain," <i>Plant Mol. Biol.</i> , 1997, 34, 815-821                    |
| 13 | Gunčar, G., et al., "Crystal structure of porcine cathepsin H determined at 2.1 Å resolution: Location of the mini-chain C-terminal carboxyl group defines cathepsin H aminopeptidase function," <i>Structure</i> , January 15, 1998, 6(1), 51-61 |
| 14 | Ishidoh, K., et al., "Molecular cloning and sequencing of cDNA for rat cathepsin H. homology in pro-peptide regions of cysteine proteinases," <i>FEBS Letts.</i> , December 1987, 226(1), 33-37   |
| 15 | Lee, L., et al., "Transformation and regeneration of creeping bentgrass ( <i>Agrostis palustris</i> Huds.) Protoplasts," <i>Crop Sci.</i> , 1996, 36, 401-406   |
| 16 | Löscher, R., et al., "Biosynthesis of p-hydroxybenzoate from p-coumarate and p-coumaroyl-coenzyme A in cell-free extracts of <i>Lithospermum erythrorhizon</i> cell cultures," <i>Plant Physiol.</i> , 1994, 106, 271-279                         |
| 17 | Ricard, J., et al., "Subunit interactions in enzyme catalysis kinetic models for one-substrate polymeric enzymes," <i>European J. Biochemistry</i> , 1974, 41, 479-497  |
| 18 | Rogers, J.C., et al., "Aleurain: a barley thiol protease closely related to mammalian cathepsin H," <i>Proc. Natl. Acad. Sci. U.S.A.</i> , 1985, 82(19), 6512-6516  |
| 19 | Schnitzler, J.P., et al., "Biosynthesis of p-hydroxybenzoic acid in elicitor-treated carrot cell cultures," <i>Planta</i> , 1992, 188, 594-600  |
| 20 | Strausberg, R., "Cathepsin H [ <i>Homo sapiens</i> ]. Direct submission," <i>National Institutes of Health, Mammalian Gene Collection (MGC)</i> , Cancer Genomics Office, National Cancer Institute, Bethesda, MD, 2000, 20892-2590               |

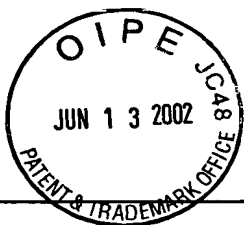
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<b>OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)</b>			
	<b>21</b>	Ueda, T., et al., "Circadian and senescence-enhanced expression of a tobacco cysteine protease gene," <i>Plant Mol. Biol.</i> , <b>2000</b> , 44(5), 649-657	
	<b>22</b>	Watanabe, H., et al., "Molecular cloning and gibberellin-induced expression of multiple cysteine proteinases of rice seeds (oryzains)," <i>J. Biol. Chem.</i> , <b>1991</b> , 266, 16897-16901	
	<b>23</b>	Yazaki, K., et al., "Formation of p-hydroxybenzoic acid from p-coumaric acid by cell free extract of <i>Lithospermum erythrorhizon</i> cell cultures," <i>Phytochemistry</i> , <b>1991</b> , 30, 2233-2236	
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**U. S. PATENT DOCUMENTS**

Examiner Initial		Document No.	Date	Name	Class	Subclass
	24	5,057,424	10/15/91	Knuth		
	25	5,279,950	01/18/94	Labuda		
	26	5,552,307	09/03/96	Kessler		
	27	5,656,482	08/12/97	Knorr		

**FOREIGN PATENT DOCUMENTS**

Examiner Initial		Document No.	Date	Country	Translation YES NO
	28	WO 99/03975	01/28/99	PCT	

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